

CORRIDOR RECOMMENDATIONS FOR STOP PROGRAM

**Air Quality Subcommittee
June 21, 2019**

ACTION REQUESTED

This item is being presented for information and input from Subcommittee members.

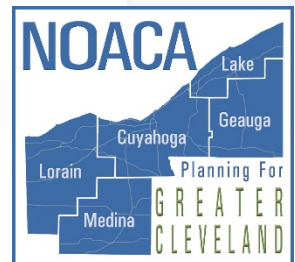
PREVIOUS ACTION

No prior action.

BACKGROUND

Program Highlights

- Began in FY2017
- 4 Corridors
- 96 Traffic Signals
- 12 Different Local Agencies Involved



BACKGROUND

STOP Program Benefits:

Emissions Savings



**12,360 Metric
Tons**

Fuel Savings



**1,416,000
Gallons**

Delay Savings



**1,637,000
Hours**

Benefit Cost Ratio



28:1














BACKGROUND

Screening Criteria

- Started with INRIX Bottleneck Rankings of Regions Non-Freeways

#1 Bottleneck Ranking - Using INRIX data

Bottleneck Ranking Table for US routes, state routes, frontages, parkways, and others in 5 counties in Ohio (5197 TMCs) between January 1, 2018 and December 31, 2018 (1000 total)

			Bottleneck Profile			Influences		Base impact weighted by		
Rank	Map	Head Location (approximate)	Average max L... 	Average daily dura... 	Total duration 	All Events/Incidents 	▼ Base Impact 	Speed differential 	Congestion 	TOTAL DELAY
1		US-20 E @ LEAR NAGLE RD	1.77	2 h 03 m	31 d 08 h 14 m	0	77,579	867,340	90,542	29,002,896
2		OH-57 N @ US-20/OH-113/CLEVELAND ST	1.13	3 h 04 m	46 d 15 h 20 m	0	70,165	1,188,313	86,199	31,343,097
3		OH-87 W @ US-422/OH-8/E 55TH ST/ KINSMAN RD	0.98	3 h 03 m	46 d 12 h 36 m	2	64,148	949,031	89,686	29,067,705
4		US-42 S @ I-80/OHIO TPKE	1.04	2 h 42 m	41 d 04 h 55 m	0	60,406	852,761	77,181	28,139,050
5		OH-57 S @ E BROAD ST	1.01	2 h 26 m	37 d 05 h 15 m	0	52,391	936,560	67,714	25,399,287
6		US-20 W @ OH-83/AVON BELDEN RD	1.71	1 h 20 m	20 d 10 h 27 m	0	49,393	555,618	60,877	21,738,438

BACKGROUND

Screening Criteria



- Eliminated construction, other bottlenecks not caused by signals
- Joined adjacent road segments
- Length (at least 1 mile)
- Average daily traffic (15,000 vpd min)
- Between 7 to 25 signals per corridor
- Density at least 4 signals per mile

BACKGROUND

Note	County	Community	Corridor	NLFID	Begin Log	End Log	From	To	Length	# of Signals	Signals Per Mile	Transit	Existing Bike	Total Crashes	Total Crashes Per Mile	ADT	Truck ADT	Truck Percent	Bottleneck Location	Bottleneck Rank in the NOACA Region	V/C Ratio
Construction on Center Ridge Rd	Lorain	North Ridgeville	Center Ridge Rd	SLORUS00020**C	22.54	24.21	SR-83	Lear Nagle	1.67	11	6.59		None		466.00	16,053	762	4.7%	Lear Nagle	1	0.46
	Cuyahoga	Lyndhurst, Mayfield Hts, Gates mills	Mayfield Rd	SCUYUS00322**C	11.79	14.51	Brainard Rd	W Hill Dr	2.72	22	8.09	18 signals covered	None	1,146	421.32	39,107	4,015	10.3%	W Hill Dr I-271	10 17	1.27
	Medina	Brunswick, Brunswick Hills Twp	Center Rd	SMEDSR00303**C	6.88	9.82	Pearl Rd	W 130th St	2.94	14	4.76	All	None	766	260.54	40,812	2,628	6.4%	Pearl Rd	25	1.27
Retimed in 2017 under the STOP Program	Cuyahoga	Lyndhurst, Pepper Pike, Beachwood, South Euclid, University Hts	Cedar Rd	CCUYCR00023**C	8.15	11.06	Green Rd	Lander Rd	2.91	13	4.47	7 signals covered	None	1,021	350.86	39,145	2,572	6.6%	Richmond Rd	27	1.01
0.74 V/C CMP	Cuyahoga	Independence, Valley View	Rockside Rd	CCUYCR00053**C	1.18	3.49	Crossview Rd	Canal Rd	2.31	12	5.19	All	None	516	223.38	46,303	1,713	3.7%	Canal Rd	42	1.33
Awarded \$1.438M in CMAQ in 1Q/2020. PID 97602. Plans out for bid, under construction in late CY19 and CY20.	Cuyahoga	Strongsville, Middleburg Hts	Pearl Rd	SCUYUS00042**C	1.03	7.01	Drake Rd	Bagley Rd	5.98	31	5.18	All	None	1,290	215.72	37,878	1,163	3.1%	Ohio Turnpike Bagley Rd Royalton Rd	2 44 46	1.14
SR-237 Overlap between Mulberry St & Front St	Cuyahoga	Berea, Middleburg Hts	Bagley Rd	CCUYCR00027**C CCUYCR00027**C SCUYSR00237**C	5.26 6.16 4.28	6.02 8.82 4.42	Lindbergh Blvd	Pearl Rd	3.56	25	7.02	19 signals covered	None	896	251.69	34,011	2,828	8.3%	Lindberg Blvd Front St Pearl Rd	5 48 57	0.90
1.03 mi signal spacing at Abbey Rd & York Rd. Include the signal at Pearl/Westwood intersection. Awarded \$1.438M in CMAQ in 1Q/2020. PID 97602. Plans out for bid, under construction in late CY19 and CY20.	Cuyahoga	Strongsville, North Royalton	Royalton Rd	SCUYSR00062**C	2.22	6.48	Pearl Rd	York Rd	4.26	18	4.23	9 signals covered	None	998	234.27	33,338	1,398	4.2%	W 130th St Pearl Rd	19 21	0.96
	Cuyahoga	Cleveland	Ontario St/Orange Ave	SCUYUS00422**C	0.05	1.11	Prospect Ave	E 22nd St	1.06	7	6.60	All	S. Roadway to Carnegie	448	422.64	28,042	1,740	6.2%	S Roadway	7	0.69
	Medina	Medina, Medina Twp, Montville Twp	E Washington St/Medina Rd	SMEDSR00018**C	12.01	15.99	Jefferson St	Windfall Rd	3.98	16	4.02	10 signals covered	Guilford Blvd to Foote Rd	674	169.35	33,626	1,805	5.4%	I-71	16	1.12
	Lake	Mentor	Mentor Ave	SLAKUS00020**C	7.30	12.03	SR-306	Old Johnnycake Ridge Rd	4.73	21	4.44	All	None	1,423	300.85	22,975	3,105	13.5%	Old Johnnycake Ridge Rd	36	0.77

BACKGROUND

Selection Criteria (Operational)

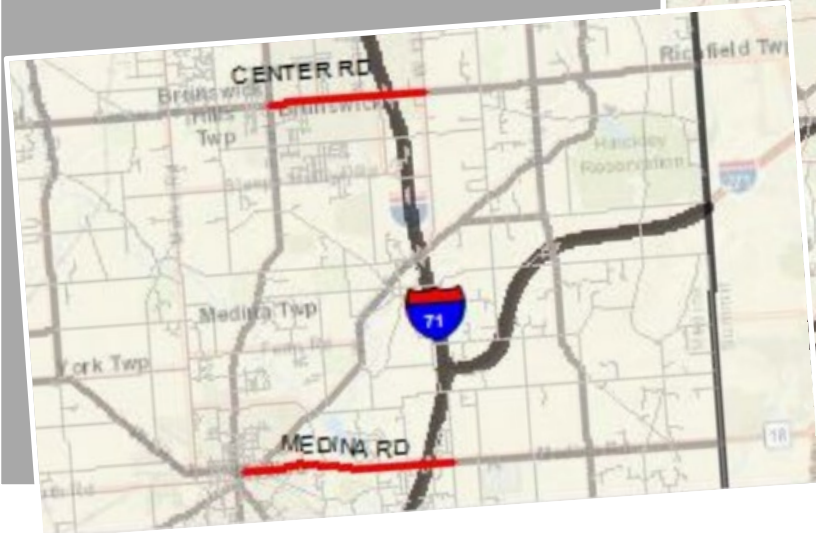
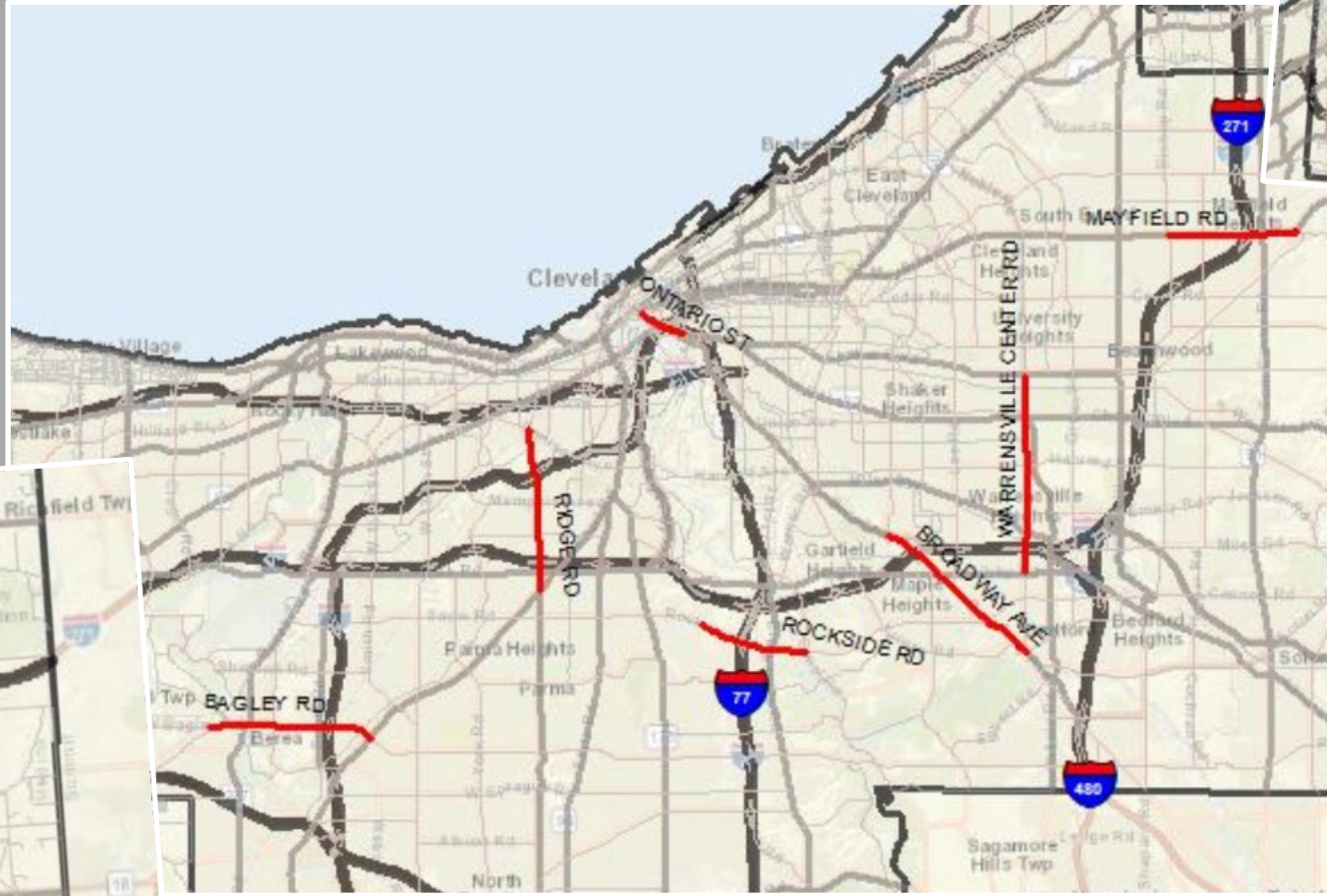
- Average Daily Traffic (ADT)
- Volume-to-Capacity Ratio
- Crash Density



BACKGROUND

Potential STOP Corridors (Operational)		
Corridor	Termini	Communities
Mayfield Rd (US 322)	Brainard Rd to West Hill Dr	Lyndhurst, Mayfield Heights, Gates Mills
Center Rd (SR 303)	Pearl Rd to West 130 th St	Brunswick, Brunswick Hills Twp, ODOT D3
Rockside Rd	Crossview Rd to Canal Rd	Independence, Valley View
Bagley Rd	Lindbergh Blvd to Pearl Rd	Berea, Middleburg Heights
Ontario/Orange Ave (US 422)	Prospect Ave to East 22nd St	Cleveland
E Washington St/Medina Rd (SR 18)	Jefferson St to Windfall Rd	Medina, Medina Twp, Montville Twp, ODOT D3
Mentor Ave (US 20)	SR 306 to Old Johnnycake Rd	Mentor
Ridge Rd	Pearl Rd to Denison/West 73 rd St	Brooklyn, Cleveland, Parma
Warrensville Center Road	Libby Rd to Shaker Blvd	Warrensville Heights, North Randall, Highland Hills, Maple Hts
Broadway Ave (SR 14)	East 131st St to Warrensville Center Rd	Garfield Hts, Maple Hts, Bedford

BACKGROUND



BACKGROUND

Selection Criteria (Emissions)

- Total vehicle hours of delay
- Assuming 4 second delay per vehicle per intersection
- Reduction of VOC, NOX, PM 2.5

BACKGROUND

Recommended STOP Corridors (Emissions)					
Corridor Analyzed	# of Signals	Delay Reduction	Emissions Reductions (kg/yr)		
			VOC	NOX	PM 2.5
Bagley Rd	17	64,331	120	141	4
Mayfield Rd (US 322)	22	59,045	110	129	4
Mentor Ave (US 20)	21	48,860	91	107	3
Ridge Rd	20	47,261	88	104	3
Warrensville Center Rd	24	46,787	87	103	3
Center Rd (SR 303)	14	42,230	79	93	3
Rockside Rd	12	36,560	68	80	2
E Washington St/Medina Rd (SR 18)	16	33,770	63	74	2
SR-14 Broadway Ave (SR 14)	14	20,951	39	46	1
US-422 Ontario St/Orange Ave	7	17,076	32	37	1

NEXT STEPS

Staff will reach out to jurisdictions identified by the screening process to confirm interest and willingness to participate in the STOP Program.

A Request for Proposals will be developed to be advertised in late September to middle of October to begin work on the next corridors in the spring of calendar year 2020.



NOACA will **STRENGTHEN** regional cohesion, **PRESERVE** existing infrastructure, and **BUILD** a sustainable multimodal transportation system to **SUPPORT** economic development and **ENHANCE** quality of life in Northeast Ohio.

